

National Aeronautics and Space Administration



## **NAC Education and Public Outreach Committee Meeting**



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[www.nasa.gov](http://www.nasa.gov)

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A presentation slide with a blue background featuring a world map and stars. The title "NASA Education Minority University Research and Education Program (MUREP)" is at the top. Below it, the section "MUREP History" is followed by a bulleted list of four points.

NASA Education

## Minority University Research and Education Program (MUREP)

### MUREP History

- **Minority University Research and Education Program (MUREP) was established in 1990** as a Division within NASA's Office of Equal Opportunity Programs (OEOP) to increase the Agency's responsiveness to Federal mandates related to Minority Institutions (MI).
- **MUREP officially merged with the Office of Education in 2003.**
- **MUREP focuses on expanding and advancing NASA's scientific and technological base through collaborative efforts with MIs.**
- **MUREP awards seek to improve the rate at which underrepresented and underserved students are awarded degrees in science, technology, engineering, and mathematics (STEM) disciplines**

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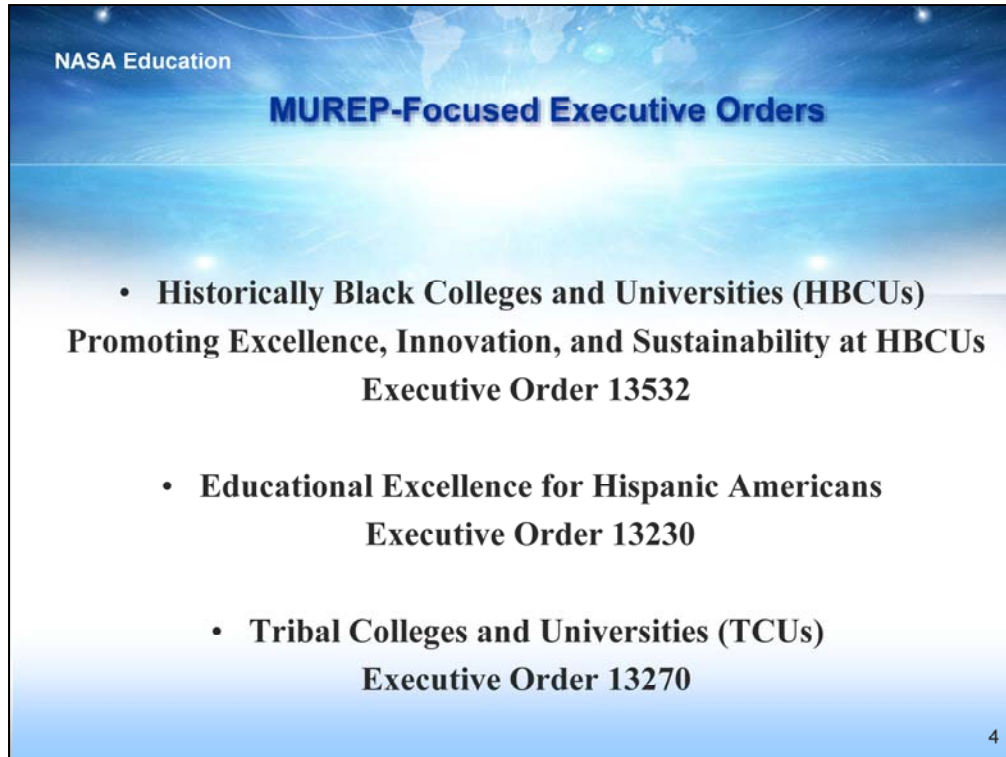
Through sufficient infrastructure-building support, exposure to NASA's unique mission and facilities, and involvement in competitive peer review and selection processes, MIs are able to contribute significantly to the Agency's strategic goals and objectives.

through increased research training and exposure to cutting-edge technologies that better prepare them to enter STEM graduate programs, the NASA workforce pipeline, or employment in NASA-related industries.

## MUREP - Objectives

**The primary objectives of MUREP are to:**

- Contribute to and promote the development of the research and academic infrastructure for Minority Institutions (MI) in areas of strategic importance to NASA.
- Improve the capabilities of MIs to gain support from sources outside of MUREP.
- Increase the participation of underrepresented and underserved students and MI faculty in NASA research and education opportunities.
- Increase the number of underrepresented and underserved students in STEM disciplines and careers by providing scholarships, fellowships and internship opportunities.



The first Executive Order for HBCUs was issued by President Jimmy Carter in 1980. Since that time each President has signed a new order during the first year of their Administration. Both the Hispanic and TCU Executive Orders were modeled after the HBCU ExO. As you will see the Tribal College EXO more closely models it than the Hispanic EXO.

All of these Executive Orders are in effect until President Obama issues new ones. To date, the Executive Directors for both the TCU and Hispanic Initiatives are vacant.

Does anything jump out at you when you look at the titles of the three EXOs?

## Minority University Research and Education Program (MUREP)

### MUREP Projects

- Research Clusters
  - Motivating Undergraduates in Science and Technology (MUST)
  - Curriculum Improvement Partnership Award for the Integration of Research into the Undergraduate Curriculum (CIPAIR)
  - NASA Science and Technology Institute for Minority Institutions (NSTI-MI)
  - Jenkins Predoctoral Fellowship Project (JPFP)
- University Research Centers (URCs)
- Minority Institutions Collaboration
  - MUREP Small Projects (MSP)
  - Tribal Colleges and Universities Project (TCUP)
- **Innovation in Global Climate Change Education (GCCE) - Starting FY11**

# NASA Education

PROJECT #	NATIONAL AERONAUTICS & SPACE ADMINISTRATION							
	FY 2011 Presidents Budget to Congress							
	(\$ in Millions)							
		FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
	LABOR	0.000	1.410	1.466	1.521	1.596	1.670	1.744
	Education	28.397	28.561	30.967	31.022	31.097	31.171	31.244
	Higher Education STEM Education	28.397	28.561	30.967	31.022	31.097	31.171	31.244
	Higher Edu STEM LABOR	0.000	1.410	1.466	1.521	1.596	1.670	1.744
	Higher Education STEM Education	28.397	27.151	29.501	29.501	29.501	29.501	29.500
	Minority Univ Res. & Education Prog. (MUREP)	28.397	28.561	30.967	31.022	31.097	31.171	31.244
	Minority Univ Res. & Education Prog. (MUREP)	28.397	27.151	29.501	29.501	29.501	29.501	29.500
	MUREP LABOR	0.000	1.410	1.466	1.521	1.596	1.670	1.744
905382	RESEARCH CLUSTER	11.050	10.358	11.557	11.547	11.514	11.481	11.277
272766	Motivating Undergraduate in Sci & Tech (MUST)	2.284	2.000	2.599	2.685	2.671	2.657	2.646
304341	Curriculum Improv. Partnership Award (CIPAR)	3.111	2.811	2.800	2.818	2.814	2.809	2.770
450223	NASA Sci & Tech Institute for Minority (NSTIM)	2.461	2.947	2.967	2.959	2.952	2.944	2.880
322134	Jenkins Fellowship	2.625	2.600	3.191	3.085	3.078	3.071	2.980
420188	Nasa Administrators Fellowship Program (NAFP)	0.569	Sunset					
387780	University Research Centers (URC)	14.062	9.419	9.810	9.783	9.758	9.734	9.788
214931	Minority Institutions Collaborations	3.285	2.600	2.950	2.942	2.934	2.927	2.928
222247	MUREP Small Programs	1.700	1.374	1.549	1.545	1.541	1.537	1.564
258293	Tribal, HSLHBCU Collaborations	1.585	1.226	1.400	1.397	1.393	1.390	1.411
261691	Innovation in Global Climate Change Education		3.364	3.718	3.708	3.699	3.689	3.763
	Global Climate Change Education	0.000	0.000	0.000	0.000	0.000	0.000	0.000
023611	Global Climate Change Education	0.000	0.000	0.000	0.000	0.000	0.000	0.000



FY00	FY01	FY02	FY03	FY04
\$84.10	\$84.10	\$84.10	\$84.10	\$92.50
FY05	FY06	FY07	FY08	FY09
\$70.70	\$40.91	\$24.73	\$27.49	\$28.20
FY10	FY11	FY12	FY13	FY14
\$28.4	\$30.65	\$30.97	\$31.02	\$31.10

## **Motivating Undergraduates in Science and Technology (MUST)**

### MUST - Overview

- Managed via a cooperative agreement with the MUST Consortium (the Hispanic College Fund (HCF), the United Negro College Fund Special Programs (UNCFSP) and the Society for Hispanic Professional Engineers (SHPE).
- The MUST Program supports 100 undergraduate students pursuing degrees in STEM with a one-year competitive scholarship of up to one-half of tuition, not to exceed \$10,000 and a \$6,000 stipend to participate in a summer research experience at a NASA facility; May be renewed up to 3 years.
- Eligibility: U.S. Citizens – Sophomore or Junior – GPA = 3.0
- Focus on underrepresented and underserved students.
- Application Available: November 1, 2010 - On-line application: <http://scholarships.hispanicfund.org/applications/>
- Enriches scholar education through the MUST Professional Academic Support System (MUST PASS), an academic enrichment, mentoring, and career development system.



## Harriett G. Jenkins Pre-doctoral Fellowship Project (JPFP)

- Competitive fellowships that successfully navigate students who are underrepresented in STEM disciplines through graduate school to enable their entry into the STEM workforce.
- 20 fellowships awarded annually that provide support for up to 3 years.
- JPFP Eligibility:
  - U.S. Citizenship Required
  - Underrepresented persons in STEM
  - Grad Student within first 3 years of program
  - Minimum 3.0 G.P.A.

Applications Available September 2010





## JPFP Highlights

- **Fellowship Funding** - stipends & tuition for up to 3 years.
  - Stipend: \$22,000/yr (Ph.D.) & \$16,000/yr (M.S.)
  - Tuition Offset: \$8,500/yr
- **Mini Research Award** - Program provides fellows with the opportunity to participate in a 10 week “hands-on” NASA research experience.
  - Stipend: \$7,000

JPFP website: [www.uncfsp.org/jpfp](http://www.uncfsp.org/jpfp)



## **Curriculum Improvement Partnership Award for the Integration of Research (CIPAIR) into the STEM Undergraduate Curriculum**

### Overview

- The primary goal of CIPAIR is to help two-year and four-year Minority Institutions strengthen their STEM curricula in order to attract more students into STEM-based academic programs, retain them, and prepare them for success when they take the next steps in their education or in their careers.

### Objectives

- (a) establishment or strengthening of relationships of MI faculty with NASA Centers; (b) integration of NASA-related content and research opportunities into the MI curriculum; (c) involvement of students in program development and improvement; and (d) commitment of the MI administration to long-term sustainability.



# CIPAIR

## Program Facts

- CIPAIR award - Three-years at \$150,000 per year
- Eligible Institutions – Two-Year and Four-Year Minority Institutions
- Four-Year Institutions must have a Two-year Partner Institution
- Awardees enter into partnerships with a NASA Center
- A new CIPAIR solicitation will be available in April 2010
- Administered by UNCFSP – [www.uncfsp.org](http://www.uncfsp.org)

## **NASA Science and Technology Institute for Minority Institutions (NSTI-MIs)**

- A project designed to strengthen the research capabilities of both faculty and students of MIs
- Managed at the NASA Ames Research Center in CA by UNCFSP
- Provides faculty and students opportunities to conduct NASA research through collaborations with NASA scientists
- Components: (1) Summer Scholars Program; (2) Institutional Research Clusters; and (3) Faculty Fellowships (Stipend: \$12,500 for ten weeks)
- For application availability see the NSTI-MI website:  
<http://www.uncfsp.org/nasa/>

## NSTI-MI: RESEARCH CLUSTERS

### **Information and Emerging Technologies (ARC)**

- Nanoscale research for Aerospace and Thermal Protection Systems
- Supercomputing, Space Exploration, Air Traffic Management

### **Energy and Environmental (GRC)**

- Alternative and renewable energy sources
- Energy management in space exploration
- Human habitation environment on Earth & space

### **Mission Enabling Technologies (JSC)**

- Human exploration mission enabling research
- Science mission and payloads, biotechnology
- Astrobiology, human factors, advanced Life Support



## MUREP Small Projects (MSP)

### Overview

MSP is an umbrella term for STEM education initiatives that are part of MUREP's portfolio

The goal is to fund innovative STEM projects that address MUREP's priorities

MSP is intended to provide seed funding

MSP supports a variety of activities for students, teachers, faculty and researchers from underrepresented and underserved communities in NASA-related STEM fields

One project is currently grandfathered: Achieving Competence in Computing, Engineering, and Space Science (ACCESS)

Eligibility: MSIs and Minority-Focused Organizations

Funding: Up to \$150,000 per year for three years

FY10 Plans: To release a solicitation in FY10 for FY11 funding and implementation

### **Examples of MSP Awards Funded in FY 2009**

Florida A & M University (FAMU): *Minority Innovation Challenges Institute*

Universidad Metropolitana (UMET): *Engaging MSI STEM Students Through Space-Based Capstone Design*

San Diego State Technical College (SDSTC): *Laser Scanning for Digital Manufacturing*

## Tribal Colleges and Universities Project (TCUP)

### Overview

(TCUP) is a science, technology, engineering and mathematics (STEM) educational grant and mentoring program that specifically targets Tribal Colleges and Universities.

The overall goal of the project is to expand opportunities for the nation's Tribal Colleges to participate in the research and education opportunities of NASA through capacity building, infrastructure development, research experience, outreach, and information exchange.

**There are three primary elements of the project:**

- 1) Summer Research Experience (SRE), which provides NASA research, engineering, and education opportunities to Tribal College and University faculty and students;
- 2) Enrichment Grant program, which provides funding for the improvement of education, research, and learning infrastructures; and
- 3) STEM planning, coordination, and information exchange activities.

**Primary NASA Partner:** American Indian Higher Education Consortium

**FY 2010 TCUP CAN for Project Administration: Selection in August**

## University Research Centers (URCs)

**Awards are for 5 years, not to exceed \$1million per year**

**Annually 25% of the funding or \$250,000 must be used as direct support to undergraduate and/or graduate students**

NASA currently funds 13 URCs. For example;

Howard University – Center for Climate System Observation

Morgan State University - Center of Excellence in Systems Engineering  
for Space Exploration Technologies

Texas Southern University – Center for Bio-Nanotechnology and  
Environmental Research

**Next URC Solicitation – FY 2012**

## University Research Centers

- Multidisciplinary research units performing scientific and/or engineering research in support of NASA's Mission Directorates.
- Established at Minority Institutions (MIs) to expand the nation's base for aerospace research and development; increase participation by faculty and students in the research programs of NASA's Mission Directorates; and increase the number of underrepresented and underserved students at MIs who obtain advanced degrees in NASA-related fields.

### URC Participants

<b>Norfolk State University</b>	<b>Clark Atlanta University</b>
<b>Morgan State University</b>	<b>Tuskegee University</b>
<b>Texas Southern University</b>	<b>Hampton University</b>
<b>Southern University</b>	<b>City University of New York</b>
<b>UPR at Rio Piedras</b>	<b>University of TX at Brownsville</b>
<b>CA State University at Los Angeles</b>	<b>Alabama A&amp;M University</b>
<b>Tennessee State University</b>	<b>Prairie View A&amp;M University</b>
<b>UPR at Mayaguez</b>	<b>Morehouse School of Medicine</b>
<b>University of TX at El Paso</b>	<b>Howard University</b>
<b>Fisk University</b>	<b>North Carolina A&amp;T State University</b>
<b>Florida A&amp;M University</b>	<b>Florida International University</b>

## Innovation in Global Climate Change Education (IGCCE)

### IGCCE Project Goals

1. Increase the climate literacy and level of engagement of the United States public
1. Create a diverse, highly skilled, and motivated future workforce in climate-related sciences

### IGCCE Project Objectives

#### **Through collaborations with Minority Institutions:**

- Improve the teaching and learning about global climate change and Earth system science in elementary and secondary schools and on college campuses
- Increase the number of underrepresented and underserved students prepared to teach math and science
- Increase the number of students using NASA Earth observation data/NASA Earth system models to investigate and analyze global climate change issues
- Increase the number of undergraduate underrepresented and underserved students prepared for employment and/or to enter graduate school in technical fields relevant to global climate change

## Diversity in Space Grant

**National Space Grant College and Fellowship Program** is a national network of state-based consortia designed to promote NASA's interests throughout the country.

The goal of the project is to contribute to the nation's science enterprise by funding education, research, and public service projects through a national network of university-based Space Grant consortia.

- **Diversity is a key focus of the Space Grant program:**
  - **Consortium management – including the affiliate representatives and membership on Advisory Committees in each consortium**
  - **Membership and meaningful engagement of minority-serving institutions in consortium activities**
    - Minority-Serving Institution Partnership Development Competition was targeted to enhance the involvement of MSIs
  - **Participation by underrepresented higher education students in research, education, and fellowships/scholarships**
    - Each consortium sets target participation percentages in line with the enrollment percentages of the National Center for Education Statistics



## Space Grant Minority-Serving Institution Partnership Development Competition (MSIPD)

- With additional available funds in 2009, the following awards were selected for the MSIPD:

State	Title	Minority Serving Institution(s)
Colorado	Active Community College Experiences for Students in Space (ACCESS)	4 MSI Community Colleges
Illinois	An innovative program of mentoring and research to connect Chicago State University with University of Chicago, the Adler Planetarium, DePaul University, and Argonne National Lab	Chicago State University
Maryland	Student Research Collaboration and Exchange	* Morgan State University * University of Maryland Eastern Shore
Montana	Student Research Projects in Ground Remote Sensing and Aurora Detector at Montana Tribal Colleges	7 Tribal Colleges
New Mexico	Expansion of the Spaceport America Student Launch Program	* 4 Hispanic-Serving Universities and Community Colleges * 1 Tribal College
New York	Development of a CUNYSAT Program	Medgar Evers College, CUNY
Wisconsin	Sky People: A Student Rocketry Initiative with the College of Menominee Nation	4 Tribal Colleges

Most consortia are using this opportunity as a stepping stone to enhanced engagement and involvement with the participating MSIs.

## NASA MSI Communication Strategy

- **New MUREP Website -**

[http://www.nasa.gov/offices/education/about/murep\\_overview.html](http://www.nasa.gov/offices/education/about/murep_overview.html)

- **Pre-application workshops:** CIPAIR, URC, NSTI-MI, IGCCE

- **Technical Assistance Workshops:**

White House Initiative on HBCUs Annual Technical Assistance Conference and  
New HBCU Presidents Orientation  
Tribal College Forum  
National Association of Sponsored Program Administrators Annual Meeting  
Institutional Site Visit

**Conference Sponsorship**

HESTEC  
HENAAC/Great Minds in STEM  
Society of Hispanic Professional Engineers (SHPE)  
National Society of Black Engineers (NSBE)  
American Indian Sciences Engineering Society  
National Society of Black Physicists and Hispanic Physicists